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## INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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Sheet of | 10

	Complete If Known
Application Number	-To-Be Assigned 10/044, 539
Filing Date	Herewith
First Named Inventor	Cech, Thomas J.
Group Art Unit	Te-Be-Assigned /672
Examiner Name	To Bo-Assigned Crafo
Attorney Docket Number	015389-002630US

		······		U.S. PATENT DOCUM	MENTS	
Examiner Initials *	Cite No.'	U.S. Patent Doc. Number Kind C	ode <sup>2</sup>	Name of Palentise or Applicant of Cited Document	Data of Publication of Cited Document MM-OD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Rigures Appear
D/I	Α .	08/751,189		Harrington, et al.	11/15/96	7190103745981
1	В	60/038,750		Counter, et al.	02/20/97	
	С	9,817,837		Tanenholtz et al.	06-18-74	
	٥	3,850,762		Schuure et al.	11-28-74	<del></del>
	E	3,939,350		Kronick et al.	02-17-76	
	F	3,996,345		Utimen <i>et et</i> .	12-01-76	
	G	4,275,149		Litman et et.	06-23-81	
	Н	4,277,437		Maggio	07-07-81	<del></del>
	•	4,366,241		Tom et al.	12-28-82	
	J	4,683,195		Mullis et al.	07-28-87	:
	K	4,683,202		Mullis	07-28-87	
	L	4,816,567		Cabilly et al.	03-28-89	
	M	4,965,168		Mulls et al.	10-23-90	
	N	5,489,508		West et al.	02-06-98	
	0	5,583,016		Villeponteau et al.	12-10-96	
	Р	5,747,317		Cao	05-05-98	
	0	5,770,422		Collins	06-23-98	
	R	6,093,809		Cech, et al.	07/25/00	
$\Box$	S	6,258,535	B1	Villeponteau et al.	07/10/01	
-1/-1	Т	6,261,556	B1	Weinrich et at.	07/17/01	
_レー	Ü	6,261,836	81	Cech et al.	07/17/01	

				FOREIG	N PATENT DOCU	MENTS		
Examiner	Foreign Patent Document	Name of Patentee	Date of D 4 floors	Pages, Columns, Lines,				
tritats*	No.'	Office <sup>3</sup>	Number*	Kind Code® (# known)	or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Where Relevant Passages or Relevant Figures Appear	т4
DM	V	JP	09154575-A			05-17-97		
	W	PCT	WO 84/0356	4		09-13-84		
	X	PCT	WO 95/1398	2		05-18-95		
	Y	PCT	WO 96/0183	5		01-25-96		
	Z	PCT	WO 98/12811			05-02-96		
<b>W</b>	AA	PCT	WO 98/19580	5		06-27-96		

Examiner Signature	Carl Moto	Date Considered	1/4/07

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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Sheet 2 of 10

	Complete if Known
Application Number	-To Be Assigned 10/044.539
Filing Date	Herewith
First Named Inventor	Cech, Thomas J.
Group Art Unit	To Be Assigned 1632
Examiner Name	To Be Assigned Listo
Afformer Docket Number	015380-003630116

		,	FOREIG	N PATENT DOCL	MENTS		
Examiner Initials*	Cite No. <sup>1</sup>	Office <sup>a</sup>	reign Patent Document  Number* Kind Code <sup>5</sup> (// known)	Name of Patentee . or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T <sup>o</sup>
DM	AB	PCT	WO 96/40868		12-19-98		<del></del> -
	AC	PCT	WO 98/01542		01-15-98		
	9	PCT	WO 98/01543		01-15-98		
	Æ	PCT	WO 98/07838		.03-05-98		
	AF	PCT	WO 98/08938		02-26-98		
	AG	PCT	WO 98/21343		05-22-98		
	AH	PCT	WO 98/37181		08-27-98		
	Al	PCT	WO 98/46450		10-15-98		
71	AJ	PCT	WO98/59040		12/30/98		
	AK	PCT	WO99/01560		01/14/99		···

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<u> </u>		OTHER PRIOR ART NON PATENT LITERATURE DOCUMENTS	
Examiner Initials *	Cite No.1	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	т
DA	AL	1994 Genome Issue of Science (285:1981f)	
	АМ	Anderson and Young, "Quantitative Filter Hybridization" In Nucleic Acid Hybridization pp73-111 (1985)	
	AN	Ausubel et al., Current Protocols in Molecular Biology, John Wiley & Sons, New York NY (1989)	
	AO	Autexier et at., "Reconstitution of human telomerase activity and identification of a minimal functional region of the human telomerase RNA," (1996) EMBO J, 15:5928	
	AP	Auxender and Greider, "Functional reconstitution of wild-type and mutant Tetrahymena talomerase," (1994) Genes Develop., 8:563	
	<b>AO</b> .	Bergar and Kimmel, Guide to Molecular Cloning Techniques, Meth. Enzymol., vol. 152, Academic Press, San Diego CA (1987)	
	AR	Blessman et al., "Addition of Telomere-Associated HeT DNA Sequences "Heals" Broken Chromosome End s in Drosophila," (1990) Cell, 61:683	
	AS	Bitter et al., "Expression and secretion vectors for yeast," Meth Enzymol., (1997) 153:516	
	AT	Brackburn and Chiou, "Non-nucleosomal packaging of a tandemly repeated DNA sequence at termini of extrachromosomal DNA coding for rRNA in Tetrahymena," (1981) Proc. Natl. Acad. Sci., 78:2263	
	AU	Blackburn and Gall, "A tandemly repeated sequence at the termini of the extrachromosomal ribosomal RNA genes in Tetrahymena," (1978) J. Mol. Biol., 120:33	
	AV	Blackburn, "Telomerases," (1992) Ann. Rev. Biochem., 61:113	
	AW	Bodhar et al., "Extension of Life-Span by Introduction of Telemerase into Normal Human Cells," (1998) Science, 279:349	
	AX	Bradford, "A Rapid and Sensitive method for the Quantitation of Microgram Quantities of Protein Utilizing the Principle of Protein-Dye Blnding," (1976) Anal. Blochem., 72:248	
VI	AY	Braunstein et al., "Transcriptional allencing in yeast is associated with reduced nucleosome acetylation," (1993)  Genes Develop., 7:592	

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	,	OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS	
Examiner Initials *	Cite No.1	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	т,
DM	AZ	CaMo et al., *identification of hnRNP P2 as TLS/PUS using electrospray mass spectrometry,* (1995) RNA, 1:724	
	BA	Caruthers et al., "New chemical methods for synthesizing polynucleotides," (1980) Nucleic Acids Res. Symp. Ser., 215-223	-
	88	Chan and Tye, "Organization of DNA sequences and replication origins at yeat telomeres, " (1983) Cell, 33:563	
	BC	Colbere-Garapin et al., "A new dominat hybrid selective marker for higher eukaryotic cells," (1981) J. Mol. Biol., 150:1	
	BD	Cole et al., "The EBV-hybridoma technique and its application to human lung cancer," Monoctonal Antibodies and Cancer Therapy, Alan R. Liss Inc., New York NY 77-96 (1985)	
	8E	Collins et et., "Purification of Tetrahymena telomerase and cloning of genes encoding the two peots in components of the enzyme," (1995) Cell, 81:677	
	BF	Conrad et al., "RAP1 protein interacts with yeast telemers in vivo: Overproduction afters telemere structure and decreases chromosome stability," (1990) Cell, 63:739	
	BG	Coombs, Dictionary of Biotechnology, Stockton Press, New York NY (1994)	
	ВН	Cote et al., "Generation of human monoclonal antibodies reactive with cellular antigens," (1983) Proc. Natl. Acad. Sci., 80:2026	<del></del>
	ВІ	Counter et al., "The catalytic subunit of yeast telomerase," (1997) Proc. Natl. Acad. Sci., 94:9202	
	BJ	Counter et al., (1994) Proc. Natl. Acad. Sci., 91:2900	
	вк -	Creighton, Proteins, Structures and Molecular Principles, WH Freeman and Co, New York, NY (1983)	
V	BL	Dieffenbach and Dveksler, PCR Primer, a Laboratory Manual, Cold Spring Harbor Press, Plainview NY (1995)	

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<sup>1</sup> Unique citation designation number. 2 Applicant is to place a check mark here if English language Translation is attached.

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Substitute for form 1449B/PTO Complete If Known **Application Number** INFORMATION DISCLOSURE To Be Assigned **Filing Date** Herewith STATEMENT BY APPLICANT First Named Inventor Cech, Thomas J. Group Art Unit To Bo Assigned (use as many sheets as necessary) Examiner Name Te-Be-Assigned Attorney Docket Number 015389-002630US

		OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS	
Examiner Initials *	Cite No.1	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	7
DM	ВМ	Duples et el., "Quantitative analysis of polymerase chain reaction products using biotimylated dUTP incorporation," (1993) Anal. Biochem., 212:229	Γ
	BN	Fang et al., "Oxytricha telomers-binding protein: separable DNA-binding and dimerization domains of the α-subunit," Genes Develop. 7:870 (1993) and Gray et al., (1991) Cell 67:807	
. ()	ВО	Feng et al., "The RNA Component of Human Telomerase," (1995) Science, 269:1236	
	BP.	GenBank Accession No. AA261296	
	<b>BQ</b>	Genbank Scression no. AA299878	-
	-BA	Genbank accession no. AA211760	-
DA	BS	Gilley et al., "Altering specific telomerase RNA template residues affects active alte function," (1995) Genes Develop., 9:2214	
	ВТ	Gottschling and Cech, "Chromatin Structure of the Molecular Ends of Oxytricha Mononuclear DNA: Phased Nucleosomes and a Telomeric Complex," (1984) Cell, 38:501	
	BU	Gottschiling and Zaklan, "Tefomere proteins: specific recognition and protection of the natural termini of Oxytricha macronuclear DNA," (1986) Cell 47:195	
	BV	Grant et et., Meth Enzymol., (1987) 153:518-544	
	BW	Greenwood et al., 'Phylogenetic relationships within the class oligohymenophorea, phylum ciliophora, inferred from the complete small subunit rRNA gene sequences of Colpidium campylum, Glaucoma chattoni, and Opisthonecta henneguyt,' (1991) J. Mol. Evol., 3:163	
	вх	Greider and Blackburn, "A telomeric sequence in the RNA of Tetrahymena telomerase required for telomere repeat synthesis," (1989) Nature, 337:331	
U	BY	Greider and Blackburn, "Identification of a specific telomere terminal transferase activity in Tetrahymena extracts," (1985) Cell, 43:405	-

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Substitute for form 1449B/PTO Complete If Known **Application Number** To Be Assigned 10/044, 539 INFORMATION DISCLOSURE Filing Date STATEMENT BY APPLICANT First Named Inventor Cech, Thomas J. To Be Assigned **Group Art Unit** (use as many sheets as necessary) Examiner Name To Be Assigned Listo Attorney Docket Number 015389-002630US

		OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS	
Initials * No. 1 nu		Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(e), volume-issue number(e), publisher, city and/or country where published.	Т
		Grelder, "Telomerase is processive," (1991) Mpl. Cell. Biol., 11:4572	
	CA	Greider, "Telomere Langth Regulation," (1996) Ann. Rev. Blochem., 65:337	
	СВ	Hampton et al., Serological Methods a Laboratory Manual, APS Press, St Paul MN (1990)	T
	cc	Harrington et al., "A Mammallan Telomerase-Associated Protein," (1997) Science, 275:973	
	CD	Harrington et at., "Human telomerase contains evolutionarily conserved catalytic and structural aubunits," (1997) Genes Dev., 11:3109	
CE Hartri (1988		Hartman and Mulligan, "Two dominant-acting selectable markers for gene transfer studies in mammalian cells," (1988) Proc. Natl. Acad. Sci., 85:8047	
	CF	Henderson and Blackburn, "An overhanging 3" terminus is a conserved feature of telomeres," (1989) Mol Cell. Biol., 9:345	<u> </u>
<u> </u>	8	Hom et al., 'Synthesis of oligonucleotides on cellulose. Part II: design and synthetic strategy to the synthesis of 22 digodeoxynucleotides coding for gastric inhibitory polypeptide (GIP)," (1980) Nucleic Acida Res. Symp. 8er., 225-232	
	СН	Hudson et al., "An STS-based map of the human genome," (1995) Science, 270:1945	
	ÇI	Huse et al., "Generation of a large combinatorial library of the immunoglobulin repertoire in phage lambda," (1989) Science, 246:1275	
	Ċ	Johnson et al., (1991) Mol. Cell Biol. 11:1	
	СК	Killan et al., "Isolation of a candidate human telomerase catalytic subunit gene, which reveals complex splicing patterns in different cell types," (1997) <i>Hum. Mol. Genet.</i> , 8:2011	
	QL.	Kipling and Cooke, "Hypervariable ultra-long telomeres in mice," (1990) Nature 347:400	
שו	СМ	Klobutcher et al., "All gene-sized DNA molecules in four species of hypotrichs have the same terminal sequence and an unusual 3' terminus," (1981) Proc. Natl. Acad. Sci., 78:3015	

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Examiner Signature	Virl Mus	Date Considered	1/4/07	

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## Substitute for form 1449B/PTO Complete If Known **Application Number** To Be Assigned 10/044,539 INFORMATION DISCLOSURE Filing Date Herewith STATEMENT BY APPLICANT First Named Inventor Cech, Thomas J. To Be Assigned **Group Art Unit** (use as many sheets as necessary) Examiner Name To Be Assigned Sheet of 10 Attorney Docket Number 015389-002630US

	,	OTHER PRIOR ART NON PATENT LITERATURE DOCUMENTS				
Examiner Initials •	Cite No. Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the term (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.					
64	CŃ	Koehler and Milstein, "Continuous cultures of fused cells secreting antibody of predefined specificity," (1975) Nature 256:495				
	∞	Kosbor et et., "The production of monoclonal antibodies from human lymphocytes," (1983) Immunol. Today 4:72				
	රී	Lamond and Sproat, (1994)*Isolation and Characterization of Ribonucleoprotein Complexes,* pp103-140				
	8	Lamond et al., *Probing the structure and function of U2 snRNP with antisense oligonucleotides made of 2-OMe RNA,* (1989) Cell, 58:383				
	CR	Lendvay et al., "Senescence mutarits of Saccharomyces carevisiae with a detect in telomere replication identify three additional EST genes," (1996) Genetics, 144				
	cs	Lingler of al., "Purification of tolomerase from Euplotes adeiculatus: requirement of a primer 3' overhang," (1996)  Proc. Natl. Acad. Sci., 93:10712				
	СТ	Ungler or al., "Reverse transcriptase motifs in the catalytic subunit of telomerase," (1997) Science, 278:581				
	CU	Lingner et al., * Telomenase RNAs of different ciliates have a common secondary structure and a permuted template, * (1994) Genes Develop., 8:1984				
	CV	Lingner et al., "Telomerase and DNA End Replication: No Longer a Lagging Strand Problem?," (1995) Science 269:1533				
	cw	Lowy et at., "Isolation of transforming DNA: Cloning the hamster aprt gene," (1980) Cell, 22:817				
	СХ	Lustig and Petes, Identification of yeast mutants with altered telomere structure," (1888) Proc. Natl. Acad. Sci., 83:1398				
	CY	Maddox et al., "Elevated sarum levels in human pregnancy of a molecule immunochemically similar to eosinophili granule major basic protein," (1983) J. Exp. Med., 158:1211				
	cz	Makarov et al., "Nucleosomal Organization of Telomere-Specific Chromatin in Rat," (1983) Cell, 73:775	·			
V	DA McEachern and Blackburn, "runaway telomere elongation caused by telomerase RNA gene mutation," (1995)  Nature, 376: 403					
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	DC	Merrifield, "Solid phase peptide synthesis. I. The synthesis of a tetrapeptide," (1983) J. Am. Chem. Soc., 85:2149	l		
	DD	Meyerson et al., 'hEST2, the Putative Human Telomerase Catalytic Subunit Gene, is Up-Regulated in Tumor Cells and during Immortalization,' (1997) Cell, 90:785	t		
	DE	Murray, In McGraw Hill Yearbook of Science and Technology, (1992) McGraw Hill, New York NY, pp 191-198	T		
	DF	Nakamura et al., "Telomerase Catalytic Subunit Homologs from Fission Yeast and Human," (1997) Science, 277:855			
	DG	Nakayama et al., "TLP1: A Gene Encoding a Protein Component of Mammalian Telomerase is a Novel Member of WD Repeats Family," (1997) Ceit,88:875	ponent of Mammailan Telomerase Is a Novel Member of		
	DH	Nielsen <i>et al.</i> , (1993) "Peptide nucleic acids (PNAs): Potential antisense and anti-gene agents," A <i>nticancer Drug</i> Des., 8:53			
	Ol	Oka et al., "Inverted terminal repeat sequence in the macronuclear DNA of Stylonychia pustulata," (1980) Gene, 10:301			
	2	Olovnikov, "A theory of marginotomy: The incomplete copying of template margin in enzymic synthesis of polynucleotides and biological significance of the phenomenon," (1973) J. Theor. Biol., 41:181			
	DK	Orlandi et al., "Cloning immunoglobulin variable domains for expression by the polymerase chain reaction," (1989)  Proc. Natl. Acad. Sci., 86:3833			
	DL	Prescott, "The DNA of cillated protozoa," (1994) Microbiol. Rev., 58:233			
	DM	Price, (1993) Blood Rev., 7:127	_		
	DN	Rhodes et al., "Transformation of maize by electroporation of embryos," (1995) Meth. Mal. Biol., 55:121			
V	DO	Roberge et al., "A strategy for a convergent synthesis of N-linked glycopeptides on a solid support," (1995) Science, 269:202			

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DM	DP	Romero and Blackburn, "A conserved secondary structure for telomerase RNA, " (1991) Call, 67:343	T					
	ΒQ	Sambrook et al., Molecular Cloning, A Laboratory Manual, Cold Spring Harbor Press, Plainview NY (1989)	T					
	DR	Sandell et al., 'Transcription of yeast telomere alleviates telomere position effect without affecting chromosome stability, '(1994) Proc. Natl. Acad. Sci., 91:12061						
	os	Sanger et al., *DNA sequencing with chain-terminating inhibitors,* (1977) Proc. Natl. Acad. Sci., 74:5463	ĺ					
	DT	Scharl et al., "Heat stress promoters and transcription factors," (1994) Result Probl. Cell Differ. 20:125	T					
	DU	Shampay and Blackburn, "Generation of telomere-length heterogenelty in Saccharomyces cerevisiae," (1988) Proc. Natl. Acad. Sci., 85:534						
	DΛ	Sheen and Levis, "Transposition of the LINE-like retrotransposon TART to <i>Drosophila</i> chromosome termini," (1994) <i>Proc. Natl. Acad. Sci.</i> , 91:12510						
	DW	Singer and Gottschling, "TLC1: Template RNA Component of Saccharomycas cerevisiae Telomerase," (1994) Science 266:404						
	DX	Starling et al., "Extensive telomere repeat arrays in mouse are hypervariable," (1990) Nucleic Acids Res., 18:6881	•					
	DY	Swanton et al., *Arrangement of Coding and Non-coding Sequences in the DNA Molecules Coding for rRNAs in Oxytricha sp.,* (1980) Chromosoma 77:203	,					
	DZ	Tommerup et al., *Unusual chromatin in human telomeres,* (1994) Mol. Cell. Blot., 14:5777	_					
	EA	Trask, "Fluorescence in situ hybridization: application in cytogenetics and gene mapping," (1991) Trends Genet., 7:149						
	EB	Verma et al., "Human Chromosomes: A Manual of Basic Techniques," Pergamon Press, New York NY (1988)						
V	EC	Watson, "Origin of concatarmeric T7 DNA, " (1972) Nature New Blot., 289:197						

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on	Weinrich et al., 'Reconstitution of human telemenage with the template RNA component hTR and the				
	EE	Wellinger et al., "Origin activation and formation of single-strand TG, 4 tails occur sequentially in late 8 phase on a Yeast linear plasmid," (1993) Mol. Cell. Biol., 13:4057			
	EF	Wellinger et al., "Seocharomyces Telomeres Acquire Single-Strand TG <sub>1-e</sub> Tails Late in S Phase," (1993) Cell 72:51			
	EG	Whitehead Institute/MIT Center for Genome Research, Genetic Map of the Mouse, Database Release 10, APril 28, 1995			
	EH	Wigler et al., "Transfer of purified herpes virus thymidine kinase gene to cultured mouse cells," (1977) Cell, 11:223			
	EI	Wigier et al., Transformation of mammatian cells with an amplifiable dominant-acting gene,* (1980) Proc. Natl. Acad. Sci., 77:3567			
	EJ	Winter and Milsteln, "Man-made antibodies," (1991) Nature, 348:293			
	EK .	Wright et at., "Saccharomyces telomeres assume a non-nucleosomal chromatin structure, " (1992) Ganes Develop., 6:197			
	EL	Yu et al., "In vivo alteration of telomere sequences and senescence caused by mutated Tetrahymena telomerase RNAs," (1990) Nature, 344:126			
	EM	Zahler and Prescott, "Telomere terminal transferase activity in the hypotrichous ciliate Coophicha nova and a model for replication of the ends of linear DNA molecules," (1988) Nucleic Acids Res., 16:8953			
	EN	Zaklan, Telomeres: Beginning to Understand the End," (1995) Science 270:1601			
V	EO	Zaug of al., "Catalysis of RNA Cleavage by a Ribozyme Derived from the Group I Intron of Anabaena Pre-tRNA			

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